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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/650,367

08/27/2003

Sami Vilhonen

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EXAMINER

CHANG, JOSEPH

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/650,367	Applicant(s) VILHONEN ET AL.	
	Examiner Joseph Chang	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimppa et al. EP0910165A2 in view of W. Thommann et al.

Regarding Independent claim 1, a method of automatically calibrating a filter (200, 201) which filter comprises at least one RC-filter component (R1, R2, C11, C12) and is integrated on a single chip (100) together with at least one RC-filter component (Rref, Cref) of another entity (310), the method comprising tuning the at least one RC-

filter (R1, R2, C11, C12) component of the filter (310) based on measurements performed on the at least one RC-filter component (Rref, Cref) of the other entity (310).

However, Kimppa et al. does not explicitly disclose that the filter is a loop filter of a phase locked loop and that "one RC-filter component of another entity than said phase locked loop".

As would have been well known in the communication art that a PLL uses a filter called a loop filter to filter the phase error signal to control the frequency of oscillator or VCO in the PLL and W. Thommann et al. discloses an on-chip PLL having a loop filter with RC members.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the method of calibration of RC time constants as taught by Kimppa et al. to the loop filter of W. Thommann et al. because such application would have advantageously provided the correct time constants as taught by Kimppa et al.

Regarding Claim 2, tuning the RC filter component of the loop filter based on the determined tuning value would have been obvious based on the principle characteristic of any calibration process that is calibrating with a reference value.

Regarding Claim 3, "the tuning value is a control word" would have been obvious because the logic circuit in Figure 3 of Kimppa et al. controls the switches of RC components which one would recognize that the control signal is a control word.

Regarding Claim 4, Figures shows changing the value of a resistor and capacitor (R1, R2, C11, C12).

Regarding independent claim 5, as discussed in Claim 1, all the structure modification would have been obvious to one of ordinary skill in the art.

Regarding Claim 6, as discussed in Claim 2, all the structure modification would have been obvious to one of ordinary skill in the art.

Regarding Claim 7, as discussed in Claim 3, all the structure modification would have been obvious to one of ordinary skill in the art.

Regarding Claim 8, as discussed in Claim 4, all the structure modification would have been obvious to one of ordinary skill in the art.

Regarding Claim 9, "the other entity is a base-band filter for a transmitter chain of a communication unit" would have been obvious based on the reference value for transmission.

Regarding Claim 10, "the other entity is a channel-select filter for a receiver chain of a communication unit" would have been obvious based on the reference value for reception.

Regarding independent claim 11, as discussed in Claim 1, all the structure modification would have been obvious to one of ordinary skill in the art.

Regarding claim 12, the filter being a base-band and a channel-select filter would have been obvious based on the reference value for transmission and reception in a mobile phone system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nystrom et al. discloses a filter trimming circuit for a PLL.

Lim discloses a continuous time smoothing filter.


Humphreys et al. discloses calibration of PLL using RC time constant.

Amrany et al. discloses a programmable RC filter for calibration.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Joseph Chang", is positioned above the printed name and title.

Joseph Chang
Patent Examiner
Art Unit 2817